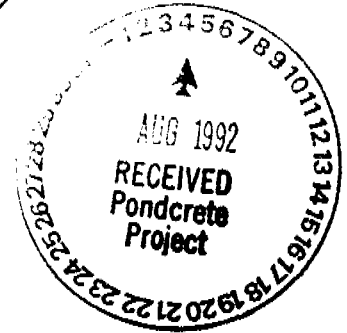


INTEROFFICE CORRESPONDENCE

DATE: July 31, 1992

TO: S. E. Heiman, Procurement, Bldg. 131, X3781

FROM: J. L. Dawson, WC&RA, Bldg. 051, 273-6032

SUBJECT: TECHNICAL EVALUATION FOR HALLIBURTON NUS PROPOSAL NUMBER
P9207069 - JLD-014-92

I have completed a technical evaluation of the proposal submitted by the Halliburton NUS laboratory to perform analysis of the saltcrete process waste stream samples. Please see the changes as demarcated on the enclosed statement of work, "Analysis of the Saltcrete Waste Stream", these are necessary changes needed to clarify requirements and to address a recent change as identified below. The following is a list of comments that need to be addressed before the proposed work begins.

1. Project Schedule Due to a recent change in the operations of the treatment equipment in building 374, the spray dryer will only be operating every 3-4 weeks and not every two weeks as originally accounted for. Therefore, EG&G proposes to eliminate 4 spray dried salt samples making the total number of samples to be submitted for analysis equal to 50.

Please see the enclosed sampling schedule for a more detailed account of when samples will be collected and which samples will be sent at each collection time. Slight variations to the schedule may occur due to the variability in run times within the 374 treatment operations and equipment. Variations will be noted and communicated to the Halliburton laboratory as soon as they are known so that the Halliburton lab can be prepared to receive samples.
2. Quality Assurance Although it has not been specifically stated, it is understood that as part of the laboratory's QA/QC protocol for receiving samples, the temperature of the cooler containing the process stream waste samples shall be recorded at the time of receipt at the laboratory.
3. Deliverables It is requested that raw data be submitted as part of the completed data package which simulates a CLP deliverable.

ADMIN RECCRD
1101-A-000198

The only specifications for the electronic deliverable that will make compatible with the RFP LIMS system is that it simulates a CLP enviroforms electronic deliverable.

It is requested that a comprehensive and complete narrative be included in the data package. The narrative shall include a description of the instrumentation and interference correction procedures that were used in the analysis of the brine and salt samples.

4. Other comments

It is understood that there may be lots of difficulties encountered in the radiochemical analysis of the dry salt samples and that it may be impossible to get results for all of the radionuclides; however, it is requested that as many of the isotopes be reported as possible.

The proposed EPA methods are appropriate and acceptable.

The labor mix and personnel qualifications appear to meet the minimum requirements for performing the requested analyses.

The proposed costs are reasonable. The total cost of the project will have to be adjusted based on analysis of 50 rather than 54 total samples due to the fact that 4 spray dried salt samples are being eliminated.

The data which is generated by this sampling and analysis effort by the Halliburton laboratory must conform to the Nevada Test Site (NTS) requirements. One of the requirements states that the laboratory performing analyses on waste streams destined for disposal at NTS will have successfully passed an independent technical audit (Halliburton passed the 1991 EG&G Environmental Operations Management audit but still needs to resolve the deficiencies noted). However, the 1992 audits conducted by EG&G Environmental Operations Management were not as favorable. For the data generated by this effort, it is imperative that the deficiencies noted in the most recent EG&G technical audits of the Halliburton laboratory be addressed and resolved. The Halliburton NUS laboratory shall show evidence that these most recent audit findings and observations are being addressed before this contract can be completed.

S. E. Heiman
July 31, 1992
JLD-014-92
Page 3 of 3

The laboratory shall communicate any perceived problems with exceeding their NRC license to the EG&G CTR when they are notified that samples are being collected for shipment to the Halliburton lab.

rsp

Enclosures:
As Stated (2)

cc:

P. G. Aguilar
S. A. Anderson
V. L. Church
D. R. Ferrer
K. V. Grossaint
E. F. Lombardi
J. S. Parker
J. Zarret



STATEMENT OF WORK
Analysis of the Saltcrete Waste Stream

Revision 1 July 30, 1992

1.0 OBJECTIVE

The objective of this Statement of Work is to obtain analytical laboratory support for the analysis of the saltcrete process waste stream.

2.0 SCOPE

Characterization of the saltcrete input waste stream shall involve the analysis of the input and output streams from the evaporator and the output of the spray dryer in building 374. The characterization effort will include laboratory analysis, and reporting of analytical data for the saltcrete process waste stream samples. Analysis for organics, inorganics, radionuclides, and selected waste characteristic determinations shall be performed on liquid, brine, and salt matrix waste samples.

3.0 BACKGROUND

Characterization of the saltcrete process waste stream is driven by commitments made in the Application to ship Saltcrete to the Nevada Test Site. Therefore, this data must meet requirements of the Nevada Test Site as written in the NVO-325 document. These commitments are based on the part B RCRA permit and the Waste Analysis Plan for treatment of wastes in the 374 building, known as the saltcrete process. The Part B permit for the Process Waste Treatment Facility Unit 42, bldg. 374 mandates that the 374 receiving tanks and the evaporator effluent undergo a full sample analysis when a major change has occurred in the waste generating process and/or annually, whichever comes first. The process has changed since it was last characterized by analytical data in 1989.

This task shall also provide necessary information that will help guide the ongoing treatment studies for the saltcrete waste stream and shall provide useful information to the Air Quality and Chemical Tracking group regarding the organic and radionuclide emissions for the 374 evaporator. This group needs analytical data to support the air pollution emission notices and air emission permitting determinations for the 374 evaporator vents. Additionally the analytical data will support the Safety

attachment
page 1 of 4

115

Analysis Review (SAR) of the building/treatment operation and will serve to justify new equipment design based on the risk assessment and hazard classification completed as part of the SAR document.

The analytical requirements and procedures shall be performed according to the attached Addendum I "Saltcrete Process Waste Stream Analysis Plan".

4.0 TECHNICAL REQUIREMENTS

- 4.1 Representative waste samples shall be screened for low-level radioactivity by the Rocky Flats Analytical Laboratories. Samples shall be packaged and released for off-site shipment to the subcontracting laboratory based on the results of these prescreening analyses.
- 4.2 The subcontractor shall record the temperature of the cooler upon receipt of containers.
- 4.3 All laboratory facilities, equipment, personnel, and procedural mechanisms must be in place in the laboratory performing the analyses so that the General Radiochemistry and Routine Analytical Services Protocol (GRRASP) analytical requirements are followed by the subcontracting laboratory.
- 4.4 The EG&G CTR shall provide central coordination for the sampling team, the traffic department, and the subcontracting laboratory so that EPA required holding times for the requested analyses can be met.
- 4.5 The subcontracting laboratory shall present evidence that their NRC license will not be violated by accepting the volume and number of requested saltcrete waste samples.
- 4.6 Analysis of the saltcrete waste stream shall follow standard protocol as defined in the EPA SW-846 methods. SW-846 methods will be used exclusively for the requested analyses. CLP protocol is not required.
- 4.7 The subcontracting laboratory shall adhere to standard, accepted QA/QC procedures and applicable Good Laboratory Practice Standards (40 CFR 792) during analyses of EG&G samples.
- 4.8 The subcontractor shall provide consultation to the EG&G Contract Technical Representative (CTR) on any deviation

from approved laboratory Standard Operating Procedures and SW-846 analysis protocols.

- 4.9 The waste water samples collected by EG&G sampling personnel from the D827 feed tank, the brine samples from the outlet of the evaporator, and the spray dried salts from the spray dryer in 374 shall be analyzed for all parameters in accordance with the attached Addendum I, "Saltcrete Process Waste Stream Analysis Plan". The number and frequency of sample collections is also listed on the attached Addendum I.
- 4.10 Shipment of samples shall commence within two weeks after contract award.
- 4.11 Turnaround time from the time of sample receipt by the off-site laboratory to reporting of analytical results to the EG&G CTR shall not exceed 30 days.
- 4.12 The subcontractor shall prepare a CLP (enviroforms) data package which shall contain a certification statement stating that Standard Laboratory Protocol as defined in the EPA SW-846 methods were followed.
- 4.13 The subcontractor shall also submit an electronic deliverable of the data which shall be compatible with the EG&G Rocky Flats Laboratory Information Management System (LIMS). EG&G Analytical Laboratories shall provide assistance to the subcontracting laboratory as required.
- 4.14 The subcontractor shall perform a formal quality review of all data before it is released, however; the subcontractor shall not perform data validation on the completed data package.

5.0 DELIVERABLES

- 5.1 The subcontractor shall submit a completed data package at a frequency of one per month. The data package shall be due no later than thirty days after receiving the last sample collected at the end of each month. A total of four data packages shall be completed for the four month sampling effort.
- 5.2 The subcontractor shall also submit an electronic deliverable data package that is compatible the the EG&G

attachment
page 3 of 4

LIMS system no later than thirty days after receiving the last sample of each month's sampling effort for this sampling and analysis program. A total of four electronic deliverable data packages shall be completed and submitted to the EG&G CTR on the same schedule as the hard copy data reports (one per month for four months).

125
attachment/
mml4h44

ADDENDUM I

Saltcrete Process Waste Stream Analysis Plan

Revision 1 July 30, 1992

Stream input to the 374 evaporator from the D-827 tank:

One sample from the composite waste water input stream shall be collected once every two weeks for 16 weeks so that a total of 8 samples are collected while the system is operational. The EG&G sampling team shall note which tanks are feeding the D-827 tank at the time the samples are taken. Building 374 operations personnel shall assist in this task.

Stream output from the 374 evaporator at the D-878 tank:

One sample every two weeks for 16 weeks shall be taken from the evaporator brine. The sampling shall commence approximately 12 days after the initial waste water feed sample is collected at the D-827 tank and approximately 4 hours into the spray dryer run. This specific timing is necessary to attempt to correlate the feed and the brine composition as well as the brine and the spray dryer salt composition.

Salt samples from the Spray Dryer outlet:

One sample every 3-4 weeks for 16 weeks for a total of 4 samples shall be collected from the spray dryer output. Sampling shall be coordinated with the Liquid Waste Operations personnel so that correlation can be made between the concentrations of contaminants in the brine and the concentrations of contaminants found in the treated salts. A spray dried salt shall be collected when each sampled brine batch has been fully processed through the dryer (about four hours after the spray dryer has begun operation).

Total Samples for Analysis

20 process waste samples, 6 field blanks, 12 trip blanks, and 12 field duplicates for a total of 50 process waste stream and QA/QC samples shall be collected over approximately 4 months for the subcontracting laboratory.

attachment 1
page 1086

6/15

The off-site subcontracting laboratory shall perform all analyses identified in Addendum I " Saltcrete Process Waste Stream Analysis Plan".

FIELD QUALITY ASSURANCE/QUALITY CONTROL

FIELD BLANKS

Field blanks consist of a full set of sample bottles filled with American Society for Testing Materials (ASTM) Type II water, preserved with appropriate reagents and taken to the field. They are opened at a specific sampling location and exposed to the sampling environment during the sampling of the specified waste stream. Sample bottles are capped, brought back to the laboratory and analyzed to determine reagent and environmental airborne contamination. One field blank for each of the matrices sampled any time within the four month sampling time frame shall be collected for the subcontracting laboratory.

TRIP BLANKS

Trip blanks consist of volatile organic compound (VOC) vials filled with ASTM-Type II water from the laboratory. The samples are transported in coolers to the sampling site and back to the laboratory for analysis. Analysis of trip blanks help determine the level of contamination introduced to the sample during shipping, handling, and storage. One trip blank for each matrix per month shall be collected for analysis by the subcontracting laboratory.

FIELD DUPLICATES

Field duplicates are independent samples collected as close as possible to the same point in time and space. Duplicates are two separate samples taken from the same source, placed in separate sample containers, and analyzed independently. Field duplicates are used to document sampling process precision. One field duplicate shall be collected per matrix per month for the subcontracting laboratory.

ANALYSIS

All samples shall be screened for gross alpha/beta by gas proportional counting before entering the laboratory

STREAM INPUT TO THE 374 EVAPORATOR at the D-827 tank

SW-846 method detection limits must be strictly adhered to for the following analytes:

ORGANICS TOTALS ANALYSIS

EPA Method 8240

Acetone

n-Butyl alcohol

Carbon disulfide

carbon tetrachloride

chlorobenzene

chloroform

cresols (and cresylic acid)

Cyclohexanone

1,2-Dichlorobenzene

1,2-Dichloroethane

Ethyl acetate

Ethyl ether

Isobutanol

Methanol

Methylene chloride

2-Butanone

4-Methyl-2-pentanone

Nitrobenzene

Pyridine

Tetrachloroethane

Tetrachloroethylene

Toluene

1,1,1-Trichloroethane

1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)

Trichloroethylene

Trichlorofluoromethane

Xylene

INORGANICS TOTALS

EPA Methods 6010/7000 or other appropriate EPA methods

Cadmium

Chromium (total)

Lead

Nickel

Silver

Arsenic

attachment/
000304/

RADIOCHEMICAL ANALYSES

Pu 238/239/240

Am 241

U 233/234, 235, 238

Tritium

OTHER

Ammonia

Total/amenable CN

Reactivity (CN or H₂S)

Ignitability

CATIONS: Aluminum, Calcium, Iron, Sodium, Potassium

ANIONS: Nitrate, Chloride, Sulfate, Phosphate, Fluoride,

Silicate, Carbonate

STREAM OUTPUT FROM THE EVAPORATOR AT THE D-878 STORAGE TANK

SW-846 method detection limits must be strictly adhered to for the following analytes:

ORGANICS TOTALS ANALYSIS

Acetone

n-Butyl alcohol

Carbon disulfide

Carbon tetrachloride

Chlorobenzene

| Chloroform

Cresols (and cresylic acid)

Cyclohexanone

| 1,2-Dichlorobenzene

| 1,2-Dichloroethane

Ethyl acetate

Ethyl ether

Isobutanol

Methanol

Methylene chloride

2-Butanone

4-Methyl-2-pentanone

Nitrobenzene

Pyridine

Tetrachloroethane

Tetrachloroethylene

Toluene

1,1,1-Trichloroethane

1,1,2-Trichloro-1,2,2-trifluoroethane

Trichloroethylene

Trichlorofluoromethane

Xylene

Attachment
DDE 4 086

INORGANICS TOTALS

EPA Methods 6010/7000 or other appropriate EPA methods

Cadmium

Chromium (total)

Lead

Nickel

Silver

Arsenic

RADIOCHEMICAL ANALYSES

Pu 238/239/240

Am 241

U 233/234, 235, 238

Tritium

OTHER

Ammonia

Total/amenable CN

Reactivity (CN or H₂S)

Ignitability

CATIONS: Aluminum, Calcium, Iron, Sodium, Potassium

ANIONS: Nitrate, Chloride, Sulfate, Phosphate, Fluoride,
Silicate, Carbonate

SPRAY DRIED SALT SAMPLES FROM THE OUTLET OF THE 374 SPRAY DRYER

SW-846 method detection limits must be strictly adhered to for the following analytes:

ORGANICS TOTALS ANALYSIS

EPA Method 8240

Acetone

n-Butyl alcohol

Carbon disulfide

carbon tetrachloride

chlorobenzene

chloroform

cresols (and cresylic acid)

Cyclohexanone

1,2-Dichlorobenzene

1,2-Dichloroethane

Ethyl acetate

Ethyl ether

Isobutanol

attachment
mpe 5/26/

12/15

Methanol
Methylene chloride
2-Butanone
4-Methyl-2-pentanone
Nitrobenzene
Pyridine
Tetrachloroethane
Tetrachloroethylene
Toluene
1,1,1-Trichloroethane
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)
Trichloroethylene
Trichlorofluoromethane
Xylene

INORGANICS TOTALS

EPA Methods 6010/7000 or other appropriate EPA methods

Cadmium

Chromium (total)

Lead

Nickel

Silver

Arsenic

OTHER

Ammonia

Total/amenable CN

Ignitability

CATIONS: Aluminum, Calcium, Iron, Sodium, Potassium

ANIONS: Nitrate, Chloride, Sulfate, Phosphate, Fluoride,
Silicate, Carbonate

Sampling Schedule

Matrix	D-827 tank waste water	D-878 tank brine	Spray Dryer output salt	
WEEK 1	1 sample for RFP labs 1 sample for Halib lab 1 field blank for metals & nuc for RFP labs 1 field blank for metals & nuc for Halib lab 1 field blank for organics for Halib lab 1 trip blank for RFP labs 1 trip blank for Halib lab 1 field duplicate for RFP labs 1 field duplicate for Halib lab			
WEEK 2				
WEEK 3	1 sample for RFP labs 1 sample for Halib lab	1 sample for RFP labs 1 sample for Halib lab 1 field blank for metals & nuc for RFP labs 1 field blank for metals & nuc for Halib lab 1 field blank for organics for Halib lab 1 trip blank for RFP labs 1 trip blank for Halib lab 1 field duplicate for RFP labs 1 field duplicate for Halib lab	4 hrs. later	1 sample for RFP labs 1 sample for Halib lab 1 field blank for metals & nuc for RFP labs 1 field blank for metals & nuc for Halib lab 1 field blank for organics for Halib lab 1 trip blank for RFP labs 1 trip blank for Halib lab 1 field duplicate for RFP labs 1 field duplicate for Halib lab
WEEK 4				
WEEK 5	1 sample for RFP labs 1 sample for Halib lab	1 sample for RFP labs 1 sample for Halib lab		
WEEK 6				
WEEK 7	1 sample for RFP labs 1 sample for Halib lab 1 trip blank for RFP labs 1 trip blank for Halib lab 1 field duplicate for RFP labs 1 field duplicate for Halib lab	1 sample for RFP labs 1 sample for Halib lab 1 trip blank for RFP labs 1 trip blank for Halib lab 1 field duplicate for RFP labs 1 field duplicate for Halib lab	4 hrs. later	1 sample for RFP labs 1 sample for Halib lab 1 trip blank for RFP labs 1 trip blank for Halib lab 1 field duplicate for RFP labs 1 field duplicate for Halib lab
WEEK 8				
WEEK 9	1 sample for RFP labs 1 sample for Halib lab	1 sample for RFP labs 1 sample for Halib lab		
WEEK 10				
WEEK 11	1 sample for RFP labs 1 sample for Halib lab 1 trip blank for RFP labs 1 trip blank for Halib lab 1 field duplicate for RFP labs 1 field duplicate for Halib lab	1 sample for RFP labs 1 sample for Halib lab 1 trip blank for RFP labs 1 trip blank for Halib lab 1 field duplicate for RFP labs 1 field duplicate for Halib lab	4 hrs. later	1 sample for RFP labs 1 sample for Halib lab 1 trip blank for RFP labs 1 trip blank for Halib lab 1 field duplicate for RFP labs 1 field duplicate for Halib lab

Sampling Schedule

Matrix	D-827 tank waste water	D-878 tank brine	Spray Dryer output salt	
WEEK 12				
WEEK 13	1 sample for RFP labs	1 sample for RFP labs		
	1 sample for Halib lab	1 sample for Halib lab		
WEEK 14				
WEEK 15	1 sample for RFP labs	1 sample for RFP labs	4 hrs. later	1 sample for RFP labs
	1 sample for Halib lab	1 sample for Halib lab		1 sample for Halib lab
	1 trip blank for RFP labs	1 trip blank for RFP labs		1 trip blank for RFP labs
	1 trip blank for Halib lab	1 trip blank for Halib lab		1 trip blank for Halib lab
	1 field duplicate for RFP labs	1 field duplicate for RFP labs		1 field duplicate for RFP labs
	1 field duplicate for Halib lab	1 field duplicate for Halib lab		1 field duplicate for Halib lab
WEEK 16				
WEEK 17		1 sample for RFP labs		
		1 sample for Halib lab		

Attachment 2
Page 2 of 2